

## Future Directions for GPS Technology

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The pace of change is ever increasing as increased sales volumes world-wide drive further investment in the development of GPS technology. The key new areas that are looming are ISO compatibility, CAN bus, wireless, multi-functional displays and implement steering. What impact will this have on the farm? As far as what is happening at home the biggest change is farmers are rapidly implementing variable rate technology and in the process are finding out the pitfalls of current equipment, suppliers of the technology and the delivery of prescription maps. Clearly inter-row sowing continues rapid adoption through the eastern states and as a flow on so has controlled traffic. There is increased interest in better control of implements.

### **FACTORY FIT OR AFTER-MARKET SUPPLIERS**

#### **Autosteer**

Purchasing Autosteer from the manufacturer will generally mean a seamless installation, but how well equipped is the dealer to support the product? How portable is it to other makes and models of equipment – one of the key benefits of the aftermarket technology is that it can be transferred and transferred in a manner that does not compromise accuracy in the other makes and models. Will the tractor manufacturer be able to support the product when connected to another brand of airseeder? Will the tractor manufacturer support the implementation of variable rate and the production of prescription maps. The technology is new and inviting at the time of purchase but if you keep the tractor for 10 years you are tied to the technology for the same time. At the current pace of change in 10 years the technology will be superseded many times over.

#### **Variable rate**

Purchasing variable rate from the manufacturer is often seen as the easiest option but how well equipped are these dealers and companies at support the technology. Often locally manufactured seeders are primarily concerned with supporting the hardware. This is definitely a worrying sign, as whoever sells the gear should support the gear. The loser will be the farmer, suffering from lack of support. What manufacturer will support the farmer in the provision of prescription maps? Who will supply prescription maps and ensure that they work for a range of controllers that a farmer may have?

### **MULTI-FUNCTION OR MULTIPLE DISPLAYS**

Multi-function displays on the surface seem to be the preferred solution - they definitely reduce cab clutter but having more functions in one display means they are generally more complicated to use. So if keeping things simple is important then multiple displays might be a better option. Any malfunction or breakdown will bring the total system to a stop. Whereas separate displays may mean you can keep going, given the importance of timely seeding this is a very significant benefit.

### **ISO COMPATIBILITY**

An increasing number of tractor manufacturers are offering ISO compatible displays in the cab. This means you can plug you implement into the tractors display. This saves cab clutter by using an existing display but you get a multi-function capability which is more complicated to use. Generally due to limitations in the ISO specifications these applications are less information rich than other non-ISO displays. So if information richness is important then ISO compatibility at this stage may not be the best option. You also have issues of who services what components – is it the implement or tractor problem?

## **CAN BUS (CONTROLLER AREA NETWORK)**

Most manufacturers are using CAN bus technologies to reduce wiring but it is generally have more electronic components. The main benefit of CAN bus is that you don't need a massive cable connecting the implement to the display (especially important with airseeders), another benefit is the systems capacity to self-diagnose problems. The display will tell the operator by way of error code what the problem is. The downside of all this is that if the self diagnosis doesn't work then they are more difficult to diagnose.

## **BASE STATION NETWORKS**

Governments around the world seem to want to get involved in the supply of RTK GPS corrections. Why is this? Because they can! Do they work – yes. Is it a good idea? Probably not because it is impractical to deliver these services to tractors, everyone seems to think if they can deliver the service to the office then the job is sorted! These systems deliver RTK corrections via internet. Delivery of gps corrections is not new its all been done before and the only successful solutions are run by AMSA (marine beacon), Omnistar and John Deere (Starfire). Currently at best these offer 10cm accuracy and they cost at least \$1,000pa. Will the government run a better service than this???

The problem is they offer RTK corrections via the internet. How reliable is the internet on farms and what does it cost?

### **Via telephone line**

This uses a dedicated office PC to accept the information and needs a means of re-transmission to the tractors in the field. A repeater mounted on a tower close to the house is required to get the signal from the office to the field and a repeater would cost about \$3,000. Often this is not practical because the house/office is not ideally located as a re-transmission site, not central to the farm or on the highest point. How reliable is the internet connection – need 100% 24/7???

### **Via stationary satellite dish**

Same issues as above we need to re-transmit the data to the field. Possibly slightly more reliable connection than landline - but at a cost.

### **Via mobile phone**

This is probably the most convenient solution because it does not require re-transmission of the data to the tractor but its success depends on having reliable mobile coverage over the entire farm. If that fits your farm then this may be a viable alternative but you need to be aware of the data costs of this service.

## **WIRELESS**

Wireless functionality offers many exciting functions that provide benefits to both users and business' providing technical support. It is now possible for technicians in an office to examine and change setting on a system operating in the paddock. Like many technologies there is always someone willing to oversell its capabilities, it won't solve all the issues but it will reduce the cost of servicing this equipment and it will provide better support to farmers. However nothing replaces technically competent manpower in the field.

## **UPGRADE EXISTING SEEDER OR PURCHASE A NEW SEEDER**

Practically any airseeder or combine can be converted to variable rate. A 2-3 product system will cost somewhere around \$10,000-\$20,000 depending on the drive mechanism. Retro-fitting will mean you get specialist support. Buying it with a new seeder means you are reliant on support from the

manufacturer. Unless there is a definite need for improved seeder hardware then retrofitting the seeder is probably the best option.

### **STEERING WINDROWERS**

These have been demanding vehicles to steer especially at high speed and in undulating terrain. There are a number of new options that promise improved performance.

### **STEERING THE IMPLEMENT**

Inter-row sowing seems to be the most demanding application with respect to accuracy. Steering the implement is the latest technology that provides improved performance.

Equipment tracking often limits does not track sufficiently well to be able to inter-row sow but these fears are unfounded provided some basic guidelines for setting up the machinery are followed. In most situations implement drift is manageable. For example there are customers inter-row sowing with 50ft Flexicoils on 9 inch tyne spacing albeit on relatively flat terrain, 60ft DBS systems on 12 inch spacing operating over Mallee sandhills and even 120ft Multi-planters in Qld. In the case of the 120ft wide Multi-planter is operating in very extreme conditions operating over steep contour banks and is using an AFTracker system that steers both the tractor and the implement simultaneously. Given the breadth of experience we now have it's a safe bet to say that inter-row sowing on 12inch tyne spacing is very achievable with most equipment and in most terrain types.

*For more information please feel free to call GPS-Ag Pty Ltd 1800211884*